

### **ABSTRACT OF THE INVENTION**

A sensor to detect the presence of water or moisture in bulk materials includes a standard circuit board and a three element transmission line. The sensor electronics include an oscillator responsive to a direct current voltage supply which provides a square wave voltage signal. The sensor electronics further include a phase detector which detects the difference in phase between the reference square wave voltage signal and a signal provided to the transmission line buried in a medium. The phase difference is proportional to the dielectric constant of the medium surrounding the transmission line.

09905761-01301  
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